

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1                   1.     (Currently amended): A defect inspection apparatus comprising:  
2                   a mount for mounting a specimen;  
3                   an illumination light to illuminate the specimen;  
4                   an imaging optical system forming an image of the specimen, the imaging optical  
5 system including an objective lens with a numerical aperture providing a resolution of at least  
6 0.18 microns, when combined with the illumination light;  
7                   an opto-electrical converter positioned to detect the image of the specimen;  
8                   an auto-focus optical system including an illumination module and a detection  
9 module, the illumination module providing illumination on a surface of the specimen at an  
10 incident angle of at least 85 degrees relative to a normal of a surface of the specimen, the  
11 detecting module detecting light from the illumination module and reflected by the specimen;  
12                   an adjuster for adjusting a focal position of the imaging optical system based on a  
13 detection signal received from the auto-focus optical system; and  
14                   a detector which detects defects on the specimen by processing electronic signals  
15 from the opto-electrical converter;  
16                   a temperature detector to measure temperature of the imaging optical system; and  
17                   a controller to control the adjuster using temperature information detected by the  
18 temperature detector.

2.     (Canceled)

1                   3.     (Original): Apparatus in claim 2 wherein the temperature detector  
2 measures a temperature at or near the objective lens of the imaging optical system.

1                   4.       (Original): Apparatus in claim 2 wherein the controller predicts a focal  
2 position offset based on temperature information detected by the temperature detector and a  
3 previously estimated relationship between temperature and focal position offset and uses the  
4 predicted focal position offset to control the adjuster based on the prediction.

1                   5.       (Currently amended): A defect inspection apparatus comprising:  
2                   means for mounting a specimen;  
3                   means for illuminating the specimen;  
4                   an imaging optical system ~~forming~~ which forms an optical image of said  
5 illuminated specimen;  
6                   means for ~~opto-electrical conversion~~ detecting an optical image of said specimen  
7 formed by said imaging optical system;  
8                   an auto-focus optical system ~~diagonally~~ obliquely illuminating a surface of said  
9 specimen and detecting light reflected from said specimen;  
10                  means for measuring temperature of said imaging optical system;  
11                  means for adjusting a focal position of said imaging optical system based on a  
12 detection signal from said auto-focus optical system and information about a temperature of said  
13 imaging optical system measured by said temperature measuring means;  
14                  means for detecting defects on said specimen by processing ~~electronic signals~~  
15 output from said ~~opto-electrical converting means~~ detecting an optical image; and  
16                  means for displaying, on a screen, information relating to defects of said specimen  
17 detected by said ~~defect detecting means~~ for detecting defects.

1                   6.       (Original): A defect inspection apparatus as in claim 5 wherein said  
2 imaging optical system includes an objective lens with a numerical aperture providing a  
3 resolution of at least 0.18 microns, when combined with said illumination light from said  
4 illuminating means.

1                   7.       (Original): A defect inspection apparatus as in claim 5 wherein said auto-  
2 focus optical system provides illumination on a surface of said specimen mounted on said  
3 mounting means at an incident angle of at least 85 degrees relative to a normal of said specimen  
4 surface.

1                   8.       (Currently amended): A method for inspecting defects comprising the  
2 following steps:

3                   measuring a temperature of an imaging optical system;  
4                   illuminating a surface of a specimen at an angle relative to said surface;  
5                   detecting light ~~from said illumination~~ reflected by said specimen;  
6                   determining, based on a signal obtained by detecting light reflected from said  
7 specimen, a focal position of ~~an~~ said imaging optical system used to form an optical image of a  
8 surface of said substrate;  
9                   matching a height position of said specimen with said determined focal position;  
10                  illuminating said specimen at said matched height;  
11                  forming an optical image of said specimen using said imaging optical system  
12 equipped with an objective lens ~~with a numerical aperture providing a resolution of at least 0.18~~  
13 ~~microns, when combined with said illumination light from said illuminating means;~~  
14                  capturing an optical image of said specimen; and  
15                  processing a signal obtained by capturing said optical image of said specimen and  
16 detecting defects of said specimen; and  
17                  wherein said step of determining a focal position is based on said temperature of  
18 said imaging optical system.

9.       (Canceled)

1                   10.       (Original): A method for inspecting defects on a specimen as in claim 8  
2 wherein temperature at or near said objective lens of said imaging optical system is measured.

1                    11.    (Currently amended): A method for inspecting defects on a specimen as  
2    in claim 8 wherein:  
3                    a focal position offset is predicted based on temperature information detected by  
4    ~~said a~~ temperature detecting means and a previously determined relationship between  
5    temperature and focal position offset; and  
6                    a focal position of said imaging optical system is controlled based on said  
7    prediction.

1                    12.    (Currently amended): A method for inspecting defects comprising the  
2    following steps:  
3                    illuminating with a first light a surface of a specimen at an angle relative to said  
4    surface;  
5                    ~~detecting light from said illumination reflected by said specimen;~~  
6                    measuring a temperature of an imaging optical system which has an objective  
7    lens;  
8                    detecting light reflected from said surface of said specimen and determining,  
9    based on ~~an obtained signal~~ obtained by said detecting and said measured temperature  
10   information, a focal position of an imaging optical system;  
11                    ~~matching a height of~~ adjusting a relative position between said specimen ~~with and~~  
12   said determined focal position;  
13                    illuminating said specimen with a second light at said matched height;  
14                    forming an optical image of said specimen illuminated by said ~~illumination~~  
15   second light using said imaging optical system;  
16                    capturing an optical image of said specimen; and  
17                    processing a signal obtained by capturing said optical image of said specimen and  
18   detecting defects of said specimen.

1                   13.   (Original): A method for inspecting defects as in claim 12 wherein a  
2 temperature of said objective lens is measured in said step for measuring a temperature of said  
3 imaging optical system.

1                   14.   (Original): A method for inspecting defects as in claim 12 wherein said  
2 objective lens has a numerical aperture providing a resolution of at least 0.18 microns, when  
3 combined with said illumination light from said illuminating means, and said optical image is  
4 formed via said objective lens.

1                   15.   (Original): A method for inspecting defects as in claim 12 wherein said  
2 light illuminating said surface of said specimen at an angle relative to said surface is illuminated  
3 with an incident angle of at least 85 degrees relative to a normal of said specimen surface.

1                   16.   (New): A defect inspection apparatus as recited in claim 5, wherein said  
2 means for adjusting adjusts a height of said specimen.

1                   17.   (New): A method for inspecting defects as recited in claim 12, wherein in  
2 said step of adjusting, a height of said specimen is adjusted.

1                   18.   (New): A defect inspection apparatus as recited in claim 5, wherein said  
2 means for illuminating illuminates a slit shape light on said specimen.

1                   19.   (New): A method for inspecting defects as recited in claim 12, wherein in  
2 said step of illuminating, a slit shape light illuminates said surface of said specimen.